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RST-07310 (August 2003)

RESERVE SUSPPORT TEAM GUIDE SPECIFICATION

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SECTION 07310

FIBER GLASS-BASED ASPHALT SHINGLE ROOF SYSTEM

0/03

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NOTE: This guide specification covers the requirements of asphalt shingle roofing, underlayments, and flashings. For a more detailed description of asphalt shingle roofing and requirements for asphalt shingle reroofing over existing asphalt shingles, wood shingles, roll roofing, or built-up roofing, see the "Residential Asphalt Roofing Manual," published by Asphalt Roofing Manufacturers Association (ARMA) and "The NRCA Steep Roofing Manual," published by the National Roofing Contractors Association (NRCA). Avoid reroofing with asphalt shingles over more than one layer of existing roofing material.

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

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NOTE: On the drawings, show:

1. Pitch of substrate/shingle roofing

2. Detail of cricket and flashings at chimney

3. Detail at eave/rake corner of roof including underlayment, drip edge, starter strip, shingle exposure, shingle courses, and fastener placement.

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PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 1289	(2002) Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
ASTM D 226	(1997a) Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D 228	(2001) Test Methods for Sampling, Testing, and Analysis of Asphalt Roll Roofing, Cap Sheets, and Shingles Used in Roofing and Waterproofing
ASTM D 412	(1998a) Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension
ASTM D 1204	(1998) Test Method for Peel or Stripping Strength of Adhesive Bonds
ASTM D 1204	(1994e1) Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature
ASTM D 1970	(2001) Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
ASTM D 2523	(2000) Practice for Testing Load-Strain Properties of Roofing Membranes
ASTM D 3018	(1990; R 1994) Class A Asphalt Shingles Surfaced with Mineral Granules
ASTM D 3161	(1999a) Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method)
ASTM D 3462	(1997; Rev. A) Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules
ASTM D 4073	(1994; 1998e1) Test Method for Tensile-Tear Strength of Bituminous Roofing Membranes
ASTM D 4869	(2002) Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing
ASTM E 96	(2000e1) Test Methods for Water Vapor Transmission of Materials
ASTM E 108	(2000) Test Methods for Fire Tests of Roof Coverings

ASTM E 119	(2000a) Test Methods for Fire Tests of Building Construction and Materials

UNDERWRITERS LABORATORIES (UL)

UL 790	(1997) Fire Resistance of Roof Covering Materials
UL 997	(1995) Wind Resistance of Prepared Roof Covering Materials

1.2 DEFINITIONS

a. Top lap: That portion of shingle overlapping shingle in course below.

b. Head lap: The triple coverage portion of top lap which is the shortest distance from the butt edge of an overlapping shingle to the upper edge of a shingle in the second course below.

c. Exposure: That portion of a shingle exposed to the weather after installation.

1.3 SUBMITTALS

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NOTE: Where a "G" in submittal tags follows a submittal item, it indicates Government approval for that item. Add "G" in submittal tags following any added or existing submittal items deemed sufficiently critical, complex, or aesthetically significant to merit approval by the Government. Submittal items not designated with a "G" will be approved by the QC organization.
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Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

Acceptable Manufacturer Products:

Manufacturer's products listed in this specification are referenced to establish a standard of quality. When the specific product listed is submitted by the Contractor that submittal will be considered as For Information Only. When an equal to that named in this specification is submitted, it shall be for Government Approval (G). The following manufacturer products are specifically mentioned in this specification:

Owens Corning World Headquarters One Owens Corning Parkway Toledo, Ohio 43659 (800) 438-7465 www.owenscorning.com	Oakridge PRO 50 Antique Silver
Atlas Roofing Corporation 1303 Orchard Hill Road LaGrange, GA 30240 (800) 955-1476 www.atlasroofing.com	ACFoam Vented-R CrossVent

Manufacturer Product submitted as an "or equal"; **G, ED**

SD-03 Product Data

Shingles **G, ED**

Cross-Vented Insulation **G, ED**

Undereave Soffet Vent **G, ED**

Ridge Vent **G, ED**

Submit data including type, weight, class, UL labels, and special types of underlayment and eave flashing.

Submit data including insulation board, nailable surface, 2-inch vent spacer strips, and UL labels.

Data sheets for Undereave Soffet Vent and Ridge Vent.

SD-04 Samples

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NOTE: Select color according to local practice, except use light-reflective colors for air conditioned buildings. Where color is specified in paragraph entitled "Asphalt Shingles," delete the requirement for submittal of color charts.
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Shingles; **G, ED**

Cross-Vented Insulation **G, ED**

Undereave Soffet Vent **G, ED**

Ridge Vent **G, ED**

SD-08 Manufacturer's Instructions

Application

1.4 DELIVERY AND STORAGE

Deliver materials in the manufacturer's unopened bundles and containers bearing the manufacturer's brand name. Keep materials dry, completely covered, and protected from the weather. Store according to manufacturer's written instructions.

1.5 WARRANTIES

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NOTE: The warranty clauses in this guide specification have been approved by NAVFACENGCOM in accordance with NAVFAC P-68. The paragraphs may be used without any NAVFACENGCOM approval of request for waiver.
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Warranties shall begin on the date of Government acceptance of the work. Wind warranty shall cover 110 mph wind uplift (requires 6-nail patteern).

1.5.1 Manufacturer's Warranty

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NOTE: Specify 30-year warranty for projects located in Bermuda. Specify the 25-year warranty for other projects.
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Furnish the asphalt shingle manufacturer's standard 50 year warranty for the asphalt shingles (including 110 mph wind up-lift).

1.5.2 Contractor's Warranty

The Contractor shall warrant for 5 years that the asphalt shingle roofing system, as installed, is free from defects in workmanship. When repairs due to defective workmanship are required during the Contractor's warranty period, the Contractor shall make such repairs within 72 hours of notification. When repairs are not performed within the specified time, emergency repairs performed by others will not void the warranty.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Asphalt Shingles

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NOTE: For projects located in Bermuda, use the bracketed requirement for 14.2 kilogram 290 pound shingles.
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NOTE: Specify fungus-resistant shingles for

projects located in climates having high humidity most of the time.

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Fiber glass-based asphalt shingles, durable, laminated with a weather-grade asphalt and a fiberglass mat core, algae resistant.

a. Fiber glass-based asphalt shingles shall have been tested in accordance with ASTM D 228.
b. Class A asphalt shingles surfaced with mineral granules in accordance with ASTM D 3018, Type I.
c. Tested for Wind-Resistance in accordance with ASTM D 3161.
d. Asphalt shingles shall be made from glass felt and surfaced with mineral granules in accordance with ASTM D 3462.
e. Shingles shall meet the requirements of ASTM D 3462, Class A.
10.3 kilograms per square meter f. 14.2 kilograms per square meter Shingles shall meet the fire resistance requirements of UL 790 for Class A.
g. Shingles shall meet the wind resistance requirements of UL 997.
h. Color shall be Antique Silver.

2.1.2 Asphalt Felt Underlayment

Non-perforated, Type I (No. 15) or Type II (No. 30), Asphalt-saturated felt conforming to ASTM D 226, or ASTM D 4869.

2.1.3 Waterproofing Underlayment

one mmWaterproofing underlayment, fiber glass reinforced with SBS modified asphalt, as recommended by the shingle manufacturer, UL approved.The waterproofing underlayment shall have been tested as follows:

a. Slip Resistance: ASTM D 1970
b. Tensile Strength: ASTM D 412
c. Elongation at Break: ASTM D 2523
d. Permeance: ASTM E 96
e. Adhesion to Plywood: ASTM D 903
f. Tear Resistance: ASTM D 4073
g. Sealability around Nail: ASTM D 1970
h. Low Temperature Flexibility: ASTM D 1970
i. Waterproofing Integrity after Low Temperature Flex: ASTM D 1970
j. Waterproofing Integrity of Lap: ASTM D 1970
k. Thermal Stability: ASTM D 1204

2.1.4 Open Valley Flashing

Open valley flashing shall be as specified in Section 07600, FLASHING AND SHEET METAL.Text

2.1.5 Undereave Soffit Vent

Undereave soffet vent shall be metal or PVC material, totally perforated, as recommended by the manufacturer.

2.1.6 Ridge Vent

Ridge vent shall be VentSure Rigid Strip Ridge Vent, Externally baffled, by Owens Corning, or equal, or as recommended by the shingle manufacturer, provided in 20-foot rolls.

1. Externally baffled for added protection against wind-driven rain and snow.
2. Durable polypropylene construction with UV inhibitors.
3. Interlocking tabs for self alignment.
4. Built-in end caps.
5. Minimum net free vent area of 60 sq. inches per 4-foot section.

2.1.7 Hip and Ridge Shingles

Hip and Ridge shingles shall have the same properties as above specified asphalt shingle and shall have the same background color as the field.

2.1.8 Nails for Applying Shingles and Asphalt-Saturated Felt

10 to 11 mm 2.67 mm 3.43 mm 20 mmCorrosion resistant or aluminum nails with minimum 12-gauge shank and a minimum 3/8-inch head. Nails must be long enough to penetrate at least 3/4-inch into solid decking or extend a minimum of 1/8-inch through the APA-rated sheathing. Staples are not acceptable.Fasteners for the Cross-Vented nailable insulation shall be as recommented by the manufacturer.

2.1.9 Cross-Vented Insulation

Cross-vented Insulation consists of a thermally efficient polyisocyanyrate insulation board with 2-inch vent spacer strips separating 7/16-inch APA/TECO rated OSB from the polyisocyanurate foam insulation to create a cross ventilating airspace. Panel size is 4-foot by 8-foot with 4-inches of insulation meeting ASTM C 1289, Type V. System shall meet UL Standard 1256 Classification for insulated metal deck construction assemblies (Constructon No. 458), UL Standard 790 Classification for use with Class A shingles, and UL Standard 263 Fire Resistance Classification(ASTM E 119).

PART 3 EXECUTION

3.1 APPLICATION

Install cross-vented insulation over a vapor retarder in accordance with the manufacturers's instructions. Apply roofing materials as specified by manufacturer's written instructions. Install shingles to meet 110 mph wind up-lift (requires a 6-nail pattern). Open valley flashing shall be as specified in Section 07600, FLASHING AND SHEET METAL.

-- End of Section --